

## Description

Stainless Steel Grade **434/1.4113** is a ferritic stainless steel known for its good corrosion resistance and fabricability. It is primarily used in applications that require moderate corrosion resistance and good mechanical properties. The addition of molybdenum enhances its resistance to corrosion, particularly against deicing chemicals.

## Chemical Composition

The typical chemical composition of Grade 434 is as follows:

Element	Content (%)
Carbon (C)	0.08 max
Manganese (Mn)	1.00 max
Silicon (Si)	0.60 max
Chromium (Cr)	16.00 - 18.00
Nickel (Ni)	0.50 max
Molybdenum (Mo)	0.75 - 1.25

Phosphorus (P)	0.040 max
Sulfur (S)	0.030 max
Copper (Cu)	0.50 max
Iron (Fe)	Balance

## Mechanical Properties

The mechanical properties of Grade **434/1.4113** are as follows:

Property	Metric	Imperial
Tensile Strength	538 MPa	78,000 psi
Yield Strength	441 MPa	64,000 psi
Elongation at Break	32%	32%
Hardness (Rockwell B)	89	89

## Thermal & Physical Properties

The thermal and physical properties include:

Property	Metric	Imperial
Density	7.74 g/cm <sup>3</sup>	0.28 lbs/in <sup>3</sup>
Melting Point	1510 °C	2750 °F
Specific Heat	0.11 kJ/kg·K	0.11 BTU/lb°F
Thermal Conductivity	15.1 W/m·K	15.2 BTU/hr/ft <sup>2</sup> /°F at 500 °C
Coefficient of Thermal Expansion	6.3 x 10 <sup>-6</sup> /°C	6.3 x 10 <sup>-6</sup> /°F

### Other Designations

Grade 434 is recognized by various standards and designations:

- DIN: 1.4113
- AISI: 434
- UNS: S43400
- JIS: SUS434
- ASTM: A240

## Fabrication and Heat Treatment

- Fabrication: Grade **434/1.4113** can be readily drawn and formed. It exhibits good ductility, making it suitable for various forming operations, such as shearing, blanking, and deep drawing.
- Heat Treatment: This grade does not respond to hardening by heat treatment. For best results, annealing should be performed at 1450-1600 °F (788-871 °C) followed by air cooling.

## Applications

Stainless Steel Grade **434/1.4113** is widely used in:

- Automotive trim and molding
- Furnace combustion chambers
- Dishwashers and range hoods
- Gas burners on heating units
- Gutters and downspouts
- Restaurant equipment
- Nitric acid plant equipment
- Oil refinery equipment

## Supplied Form and Features

Grade **434/1.4113** is typically supplied in the following forms:

- Flat rolled products
- Sheets and plates
- Wire products

Features include good oxidation resistance and the ability to withstand high temperatures up to 1500 °F (816 °C).

This datasheet provides a comprehensive overview of Stainless Steel Grade 434, highlighting its properties, applications, and specifications.